CANADIAN GEOGRAPHICAL JOURNAL

JUNE
1941

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NO. 6

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A Toast

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CANADIAN GEOGRAPHICAL JOURNAL

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The articles in this Journal are indexed in the *Reader's Guide to Periodical Literature* which may be found in any public library.

The British standard of spelling is adopted substantially as used by the Dominion Government and taught in most Canadian schools, the precise authority being the Oxford Dictionary as edited in 1936.

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Wool is the primary industry. Flocks total 114 million.

AUSTRALIA TO-DAY

by Sir William Glasgow

SPACE and sunshine are the heritage of Australians. They have plenty of room for escape from the cities during leisure hours into good healthy sunlit plains and broad white sandy beaches, washed by three oceans. Descended, almost entirely, from Anglo-Saxon forbears*, they are, by nature, lovers of freedom. Their vast island-continent, whose area is about as great as that of the United States of America, has a lofty mountain system extending in an accurate form down the eastern side, and one of lesser altitude along the west coast. The eastern mountain ranges extend along the entire coast culminating in Victoria, and an altitude of 7,328 feet is reached in Mt. Kosciusko, N.S.W. In the western ranges there are few elevations really worth the name of mountains, little of the terrain reaching above 4,000 feet in altitude. The Lowlands, from the Gulf of Carpentaria in the north to Murray River in the south, consists of a great alluvial plain of 500,000 square miles in extent, which is the most distinguishing feature of the continent. It is a great artesian well basin. West of these Lowlands, and north of the Musgrave Range of mountains, the country has a desert-like appearance. It contains many flat-topped hills and extensive rock-covered plains. South of this, around Lake Eyre, there are some sections with elevations below sea-level, but the higher plateaux to the west reach altitudes of 1,500 and 3,000 feet in places. The Steppe region extends westwards to the western mountainous country, covering some 400,000 square miles and is almost entirely arid and desert-like.

Geologically considered, Australia is one of the oldest of the continents, being part of a very ancient island of Archaean rocks which occupy nearly all the western part of the island-continent. Its curious flora and fauna, too, are ancient, representing a stage of development long since left behind by the rest of the world. The marsupial kangaroo and the duck-billed platypus, an amphibian which lays eggs and suckles its young, are objects for special wonder.

There are no active volcanoes in Australia. Numerous extinct craters and lava beds tell us, that, at a comparatively recent geological date, volcanic activity was widely extended and intense, but, since human occupation, there have been no disturbances, making Australia the only

*See table of racial origin

Top left:—Canberra in blossom time. Federal Parliament House
Bottom left:—Flinders' Ranges, South Australia

country bordering the Pacific which has not shown volcanic activity in recent times.

The backwardness of the aborigines is worthy of note, the Tasmanians, now extinct, being considered the most primitive branch of the human race. The Australian aborigines, whose cleverest contribution to mankind was perhaps the boomerang, have never been very troublesome to the white man. A nomadic people, it was easy for them to retreat inland before the advance of settlers, and the 76,000 full-blooded and half-cast living to-day are, with few exceptions, only to be found in their inland reservations. About 3,000 of them are in regular employment, the chief occupation being to assist on sheep and cattle stations.

The long erosion of soil from the mountainous spine of hills to the Pacific Ocean and the direction of the prevailing winds, has resulted in a fertile coastal strip down the eastern side of the country. Here, with a thirty-inch rainfall, is an intensive farming country with dairies, cattle, maize and sugar in evidence.

In the south-west interior region, there is an intensive sheep belt. Cattle and dairies are also seen, but fewer in number. A great wheat belt occupies much of the southern half of the continent, extending in a semi-circle from Geraldton, in Western Australia, around to Roma, in Queensland. This embraces drier country than the chief cattle or sheep area. A less important sheep belt extends from Pilbarra around the south and up to Camooweal in Queensland, and it is interspersed with cattle country in the drier and hotter margins. The great central desert is Australia's problem. About one per cent of the cattle are raised here.

The coastal region, cut in places by short rivers, is the wealthiest and the most thickly populated part of the continent. West of the range, rivers run across the reasonably fertile pastoral belt to lose themselves in the desert sands of the depressed area of central Australia.

The vegetation of Australia is quite unlike that of any other continent. In the north tropical palms, vines and shrubs are pierced here and there by tall trees. In Victoria and parts of New South Wales are cool, shady fern gullies. Over most of the arable areas of the continent may be

Top:—Eucalypts in the Dandenong Ranges, near Melbourne

Centre:—Feathers, but no flight. Australia's national bird, the emu

Bottom:—Residential suburbs on the shores of Sydney Harbour

found a species of the eucalypt, usually gums or mallee scrub. The eucalypts are worthy of comment for their peculiarities. The long, thin, light green leaves turn their sides to the sun, to preserve their moisture, and consequently cast very little shade. These trees never shed their leaves, but the bark comes off each year. Some of the eucalypts produce an oil which has medicinal qualities. For this reason, eucalyptus trees have been transplanted to the Mediterranean, South Africa and California. In central Italy they have greatly assisted in combating malaria. Large areas of central Australia are covered by salt bush and spinifex on which most animals may subsist, but which affords very little nourishment.

Spinifex is a remarkable plant. It can thrive on sun and sand in places where there is nothing else on which to thrive. Although it grows in tussocks of spike-like leaves and is regarded as a pest, it has great potentialities, for it is richly resinous and as inflammable as motor spirit. The natives make waxes and gums from its secretions and weave the blades into baskets, fishing nets, mats and shelters. Spinifex mixed with ant-bed makes an excellent basis for roads over sand or mud and water.

Pearls are harvested in the warm waters of the north, principally at Broome, Western Australia, which has for many years been the chief pearling centre of the world. In the north of Western Australia, in Northern Australia and Queensland, cattle are reared. In Queensland, sugar-cane, cotton and tropical fruits are grown, and very fine hard and softwood trees, which make excellent furniture, have been felled; the natural supplies of timber, however, are being thinned out through failure to realize early enough the wisdom of reafforestation. Between the central desert and the coast, in the sub-tropical and temperate zones of the continent, sheep raising is the most lucrative business. As a consequence, there are 120 million sheep in Australia and the Commonwealth is the world's greatest exporter of wool. Grain production, mining, dairying and fruit growing are the other chief primary industries.

Along the irrigated banks of the only great river, the Murray, many returned soldiers settled after the last war. These

Top:—Statue of explorer Matthew Flinders contrasts with modern office building in Melbourne.

Centre:—Sydney Harbour from Vaucluse

Bottom:—Bush track in South Australia

men and others produce fresh and dried fruits in considerable quantities, in addition to millions of gallons of wine. A great volume of good drinking water flows down the Murray which is, in the lower reaches, approximately 50 feet deep and 300 yards wide. From place to place, under a system devised by two Canadians, the Chaffey brothers of Ontario, water is pumped up into main concrete channels, and runs off from these into subsidiary channels. Each fruit grower has an appointed time at which he may open a sluice gate and flood his "block" by down-hill flow. The existing level of the river, and adequate supplies of water for possible droughts, are ensured by a series of locks.

Australia's boundless plains, with their dry air and nourishing grasses, made her the producer of half the world's fine wool; her climate, ranging from torrid heat in the north to cool Mediterranean temperatures in the south, enabled her people to raise many kinds of corn and grain, and practically every known variety of fruit. The shortage of fresh water, which contrasts so markedly with Canada's abundance, has been partly offset by the sinking of artesian bores to underground water. When thus tapped, artesian waters flow up the pipes like oil gushing up from an oil well.

To world economists, including Australian experts, it seemed natural until quite recently that Australia should be first and foremost a primary producing country. To-day, she is in a state of transition from almost complete reliance on the export of primary products to the United Kingdom, Europe and Japan, to the balancing of secondary with primary production, and the building up of an export trade to the Netherlands East Indies, India, South Africa and New Zealand of manufactures from newly built factories.

During the last war Australians found that they could process ore satisfactorily, and make things whose manufacture had, before necessity demanded it, been thought impossible. For example, woollen fleeces used to be shipped overseas, in grease, for spinning and weaving. Now much of the processing and weaving for home consumption is done in the Commonwealth. Big engineering shops were established in each State for the production and maintenance

of railway locomotives and street-cars, and factories for the construction of motor-car bodies were organized on mass production lines. Industry was just getting into its stride when Australia declared war. Nothing as complicated as an automobile engine was being made, but thousands of men had begun to learn to handle machines and tools, and these craftsmen form the nucleus of about 150,000 Australians who are now employed on the production of munitions of war.

The task of arming and equipping expeditionary and home defence forces of the three services seemed a Herculean one at first, even when it was understood that many of the parts and tools for guns and engines were to be supplied by Britain. But, when it became clear that, because of the urgency of the situation in Europe and the scarcity of shipping, these things would not be forthcoming, the situation became grave.

Working drawings and tools were hastily procured — wherever possible — from Britain, the United States and Canada — and the Australian Government launched the nation into an ambitious munitions building programme, the magnitude of which can be appreciated when it is understood that 33,000 jigs and tools are required for the manufacture of one of the planes under construction, and 19,187 working drawing are needed to explain the assembly of one of the guns. The demand for skilled labour was to a large extent foreseen and provided for. The Commonwealth and State Governments co-operated with trade union organizations to enlarge existing technical training centres and set up new ones.

During the last war comparatively little equipment was made in Australia, but some factories for the production of guns and small arms were established. Fortunately, when defence estimates had to be reduced drastically in the depression years of 1929 to 1931, these factories were maintained under skeleton staffs. A vast armament programme has been, and is being, built from the basis of these factories. Three and seven-tenths-inch anti-aircraft guns, such as are being used in the defence of London have been in production for some time. Bren machine guns, trench mortars, automatic rifles and three types each of Vickers and Lewis guns are being turned out methodically. Plans are well advanced for the manufacture of two and six-pound anti-tank guns and the twenty-five-pound gun-Howitzer. For some time Bren gun carriers have been coming off the lines, and many of these were manned by Australian troops in the recent Libyan campaign. It has been found advisable to strengthen the structure of these machines so that they may take the two-pound anti-tank gun as well as the Bren machine gun. Preparations are well advanced to ensure that the proposed Australian Armoured Division may be equipped by Australian factories. In addition to the Bren carriers and armoured cars which have for some time been made in Australia, light and cruiser tanks will be built. Some parts of these tanks have already been taken to Great Britain and there tested successfully. All the naval guns, up to eight inches in calibre, and the shells for them required by the Navy, are being made in Australia. As it would have been extremely difficult to add to the six cruisers in commission at the beginning of the war, because of the time required to construct these ships, it was decided to concentrate on the building of small craft which could escort Australian and New Zealand troops and merchantmen and deal adequately with submarine and aerial attacks. In pursuance of this policy, one Tribal class destroyer has already been commissioned since war began, a second has been launched and a third is under construction. A special vessel of the cor-

Making parachutes

Queensland dairy farm

Harvesting a crop of 7,000 acres of wheat in Western Australia

vette type, displacing approximately 850 tons, was designed in Australia, and it is expected that, by the end of the year, twenty of them will be ready for the Royal Navy and thirty more will be in the service of the Royal Australian Navy. Australian shipyards are humming with activity both on this work and on the task of overhauling, repairing, fitting paravanes and degaussing apparatus, converting merchantmen into armed merchant cruisers and strengthening and arming merchant ships for their own protection. During the war, more than 200 merchant ships have been so armed and manned with gun crews from, or trained by, the Royal Australian Navy.

The greatest industrial and mechanical strides have been made in the sphere of aircraft production. At Fisherman's Bend in Victoria, the Commonwealth Aircraft Corporation has produced and delivered well over 200 medium trainer planes, fitted with engines which were manufactured in the same factory as the frames. These planes, known as Wirraways (the aboriginal word for challenge) resemble Harvards. Other factories are busy assembling parts of elementary trainer planes which are being made in workshops and annexes all over the country. The local requirements of this type of plane have been more than filled, with the result that there has been a surplus for export to the Netherlands East Indies.

A vast plant in Sydney, employing about 15,000 people, turned out, at the end of April, the first of its modern Bristol Beaufort bomber planes, in which fourteen cylinder twin-row Wasp engines are fitted. These engines, the elementary trainer engines and Wirraway engines, are all being made in Australia.

The rapidity with which Australia has been able to turn to the manufacture of munitions, of which she had had little previous experience, is partly due to the versatility of the draughtsmen and engineers concerned, and partly to the fact that there existed in Australia before the outbreak of war a vast steel works, the Broken Hill Proprietary, which, in the magnitude and scope of its operations, is beginning to rival the famous Bethlehem Steel Corporation of the United States. Its managing director, Mr. Essington Lewis, a man of considerable experience, great energy and vision, was made Director-General of Munitions and given wide powers. He chose able men to support him, and drew on the vast resources of his steel works in order to supply the steel necessary for guns, tanks and ships.

The Broken Hill Proprietary, which is far larger than any of the other steel works in Australia, procures its supplies of iron ore from a great outcropping hill of very high percentage ore at Iron Knob in South Australia. The ore is then shipped by sea and rail to its three main plants at Broken Hill, Newcastle and Port Kembla, in New South Wales, where good coal is accessible. Here it is treated by the most modern methods and transformed into many types of steel. The products are being shipped to Great Britain, India and New Zealand.

Before the war, Australian opinion was divided on the question of how far domestic industry should be protected by customs tariffs. In the past year, lack of shipping and the elimination and restriction of overseas sources of supply have stimulated

new industries even more than the previous tariff protection; so that now any appreciable lowering of the tariff would result in a collapse of numerous secondary industries, which are thriving and supporting a considerable percentage of the population. In fact, more than half a million of the total population of seven millions are now directly employed by manufacturing industries, and there are more people in secondary than primary industries.

The present tendency is certainly not to lower the tariff scale. On the contrary, import duties have been steadily increased, and this, added to the introduction of prohibitions in the case of some articles, and limiting quotas in the case of others, has helped to preserve precious dollar funds and much needed shipping space.

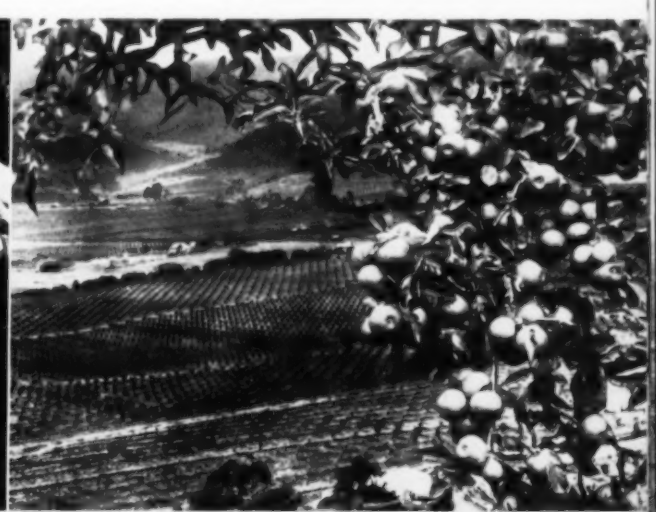
The three fighting services of Australia are well balanced, and all have given good accounts of themselves already. An expeditionary force of four divisions has been raised and a fifth, to be armoured, is being recruited and equipped. The first Australian troops to go overseas were sent to the United Kingdom where they were held in readiness to help repel any German attempt at invasion. The next Australian force went to Palestine, but was soon moved into Egypt, and played a prominent part in the Army of the Nile's successful sweep along the coast to Benghazi. When the situation in the Far East was most acute, the arrival of an Australian division in Malaya had a stabilizing influence. The Australian troops in Great Britain joined their countrymen in the Middle East a short time ago, and an Australian contingent went, with British and New Zealanders, to the assistance of the Greeks.

The Navy of six cruisers, six destroyers and ancillary craft, is being added to with all possible speed. Its efficiency has been strikingly demonstrated on several occasions already. The running down of the Italian liner *Romolo* in the Pacific was the Navy's first test. The *Romolo* was scuttled by her crew when overhauled by an Australian armed merchant cruiser. The destroyer H.M.A.S. *Voyager* gave first indication of the presence of Australian ships in the Mediterranean when she sank an Italian submarine. Then the cruiser *Hobart* successfully shelled Italian fortifications on the Red Sea coast. On 18th July, north-west of Crete, the H.M.A.S. *Sydney*, commanded by Captain John Collins, R.A.N., engaged two fast Italian cruisers, sank one, the *Bartolomeo Colleoni* and put the other to flight.

The officers and men of the Royal Australian Navy, numbering over 16,000, have been trained by, and in the tradition of, the men of the Royal Navy. Over 200 of the present officers went through the Australian Naval College, which was founded in 1913, and is now situated at Flinders in Victoria. The naval defence strategy of the continent has been planned with a view to close collaboration with New Zealand and Great Britain. Units of the Australian Navy have, for some years past, held annual manoeuvres with the New Zealand cruisers *Achilles* and *Leander*, and recently a joint defence committee was established to discuss defence matters of mutual interest. Australia has shown by her determination to help defend Singapore, that she realizes its importance in the scheme of her own defence. Work has already begun at Sydney on a great, new graving dock, to cost about $10,000,000, which will be capable of handling the

Dipping sultanas for drying — 240 tins at a time

Apple orchard in Tasmania



Native "boys" climbing cocoa-nut palms at Bathurst Island, Northern Territory

Most Australians complete their training at home. A batch of pupils leaving to train in Rhodesia.

Australian nursing staff in Egypt

largest capital ships in either the British or United States navies.

The Air Force has expanded enormously until now it numbers more than 35,000, and Australian airmen, trained or in training, are flying in the United Kingdom, the Middle East, Southern Rhodesia, Malaya and Canada, as well as defending Australia's twelve thousand miles of coastline. Some of the squadrons sent to the Middle East and Singapore were fully equipped and provided with Australian aircraft. The Australian Sunderland Flying Boat squadron in the United Kingdom was the first Dominion squadron to go into action, and many of its personnel have already received decorations for the work they have done in safeguarding the shipping routes about Great Britain. Their most spectacular feat was to bomb an enemy submarine and compel it to rise to the surface and surrender; whereupon, they signalled to a British surface craft which took the submarine and crew to port.

Australia has its own Air Training Plan, which is an integral part of the whole British Commonwealth Air Training Plan. Some Australian airmen go to Southern Rhodesia for their full course of training, after which they proceed to active service. All others do their elementary training in Australia, and some of them then come to Canada under the Joint Air Training Plan. The majority, however, receive their complete training in Australia, and are, upon graduation, posted to squadrons serving abroad or to Australian stations for home defence.

Home defence has a very real significance for Australians in this war. In the last, they had no cause to believe that they might be attacked while the cream of the nation's manhood was on the other side of the world. To-day, the Commonwealth Government is taking no chances. A substantial air force is kept at home in reserve and for reconnaissance work. In addition to this, the Government is within sight of achieving its objective, announced in June, 1940, of having a Home Defence Force of 250,000 men, in addition to the Australian Imperial Forces overseas. Every man between the ages of 18 and 60 years is liable to be called up for ninety days training in camp under the Commonwealth Defence Acts of 1903 and 1904. Australia's home army at the end of February, 1941, including Permanent forces, garrisons and members of the A.I.F. waiting to go abroad, totalled rather more than 200,000. The Minister for Army, Mr. Spender, announced a short time ago that half or more of the Australian Military Forces would be in camp under training "until further notice". This policy has necessitated the provision of between thirty and forty camps, exclusive of camps for troops training to serve overseas.

To-day Australia is homogeneous and united. Indeed, she has been a united nation since the federation in 1900 of the six separate States of New South Wales, Victoria, Queensland, South Australia, Western Australia and Tasmania. There have been political squabbles, but the people as a whole have always been clearly aware of what they want, and when those things have been threatened, they have always put aside their differences and united to defend them. During the last war, they were unanimous in pledging the country to the limit of its resources. When

General Wavell talks to Australian generals in the Middle East.

Prime Minister Menzies inspecting Australian naval units in Mediterranean

Arab scouts turn out to greet Australian troops.

Australian troops and Bren carriers on manoeuvres in Libyan Desert

Volunteers on route march in Australia

Bottom right:—Australian Imperial Force in training at home. Sore feet being attended to after route march.

Below:—Speedy Australian-made Bren carriers on country road in New South Wales.

the financial depression of the early thirties struck the country, employers and employees alike made sacrifices until prosperity dawned again. Now, they are faced with the greatest challenge ever made both to their Mother Country and their elected form of government. To enable the maximum strength to be drawn from the nation's resources, the Government passed, on 20th June, 1940, the National Security Act whereby the entire manpower and all materials are liable to be utilized for defence purposes. This Act corresponds to the National Resources Mobilization Act passed in Canada. Women have been organized for transport, medical and auxiliary services, returned soldiers have been formed into home defence guards, and youths have enlisted in reserve air corps. In short, nearly every one is finding out what he or she can best do to help the war effort, and is then doing it.

The Australian Prime Minister, the Right Honourable Robert Gordon Menzies, has just been to England to confer with the British Government. While he was there he spoke to the people of the United Kingdom, and his words may be taken as indicative of his people's feelings at the present time. This is what he said:

"My greeting to you comes from the whole of the Australian people of all creeds and political parties. On the issue of this war we are not divided. You and we are of one blood and are not to be put down by ambitious adventurers or predatory rogues.

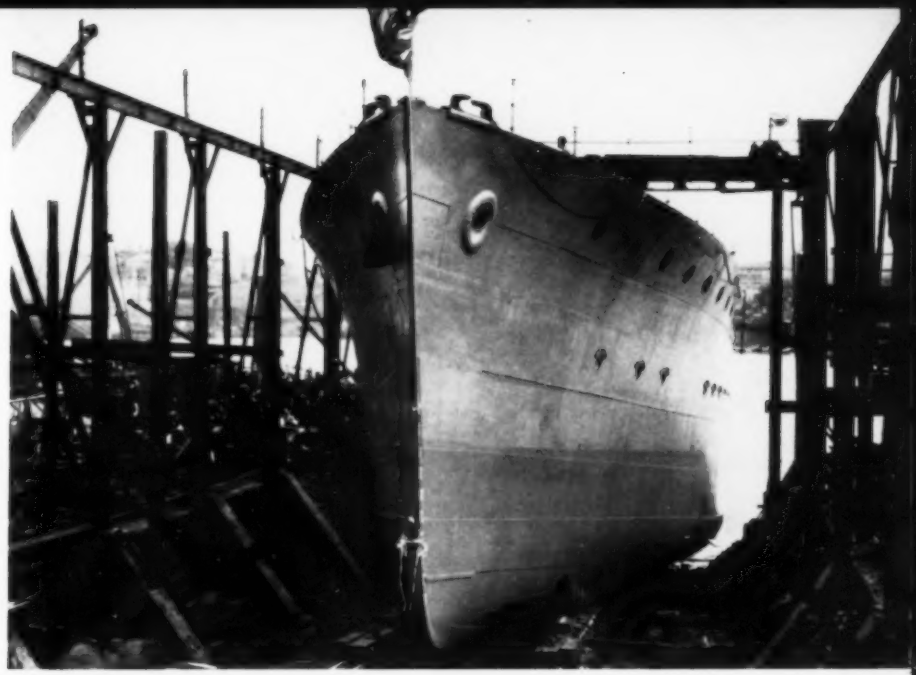
"I say to you, speaking, I am sure, not only for Australia but for the whole British Empire beyond the seas: We in this most holy war are with you in everything we have of manpower, treasure, skill and determination.

"We are pledged to work and fight for you and with you until victory is attained, and a better and more just day dawns for the world wherein our children are to live."

POPULATION: NATIONALITY (i.e., ALLEGIANCE), AUSTRALIA, 1921 and 1933
(Exclusive of Full-Blood Aboriginals)

Nationality	Census 1921			Census 1933			Increase 1921–1933
	Males	Females	Persons	Males	Females	Persons	
British	2,722,152	2,665,053	5,387,205	3,318,228	3,251,290	6,569,518	1,182,313
Foreign —							
Chinese	13,614	185	13,799	7,615	177	7,792	— 6,007
Danish	956	260	1,216	1,046	233	1,279	63
Dutch	1,430	187	1,617	786	129	915	— 702
Estonian	(a)	(a)	(a)	515	323	838	(a) 838
Finnish	517	37	554	962	100	1,062	508
French	1,221	867	2,088	924	723	1,647	— 441
German	2,538	1,017	3,555	2,738	934	3,672	177
Greek	2,430	387	2,817	4,639	1,013	5,652	2,835
Italian	3,984	919	4,903	14,068	3,590	17,658	12,755
Japanese	2,489	150	2,639	1,937	147	2,084	— 555
Norwegian	960	65	1,025	1,150	88	1,238	213
Polish	351	149	500	1,008	749	1,757	1,257
Russian	1,655	662	2,317	1,283	772	2,055	— 262
Spanish	405	140	545	463	133	596	51
Swedish	1,399	80	1,479	1,274	96	1,370	— 109
Swiss	413	151	564	680	272	952	388
United States of America	2,520	737	3,257	1,904	653	2,557	— 700
Yugoslav	502	107	609	2,503	323	2,826	2,217
Other	1,683	587	2,270	3,347	962	4,309	2,039
Total Foreign	39,067	6,687	45,754	48,842	11,417	60,259	14,505
Not Stated	1,651	1,124	2,775	41	21	62	— 2,713
Total	2,762,870	2,672,864	5,435,734	3,367,111	3,262,728	6,629,839	1,194,105

(a) Included with "Other" in 1921. NOTE — Minus sign (—) denotes decrease.
Ref. Official Year Book of the Commonwealth of Australia — No. 32-1939 (page 384).



Another corvette, H.M.A.S. *Lithgow* slides down an Australian slipway (above). Being towed to fitting dock (left).

Boat building slipway and blast furnaces under construction at Whyalla, South Australia

At work. Snow is strange to most Australians.

Australians take up the art of skiing

Passing through the Rockies en route to Uplands Air School, Ottawa

So, these are dollars!

Left:—There it is!

AIR TRAINEES

NADA

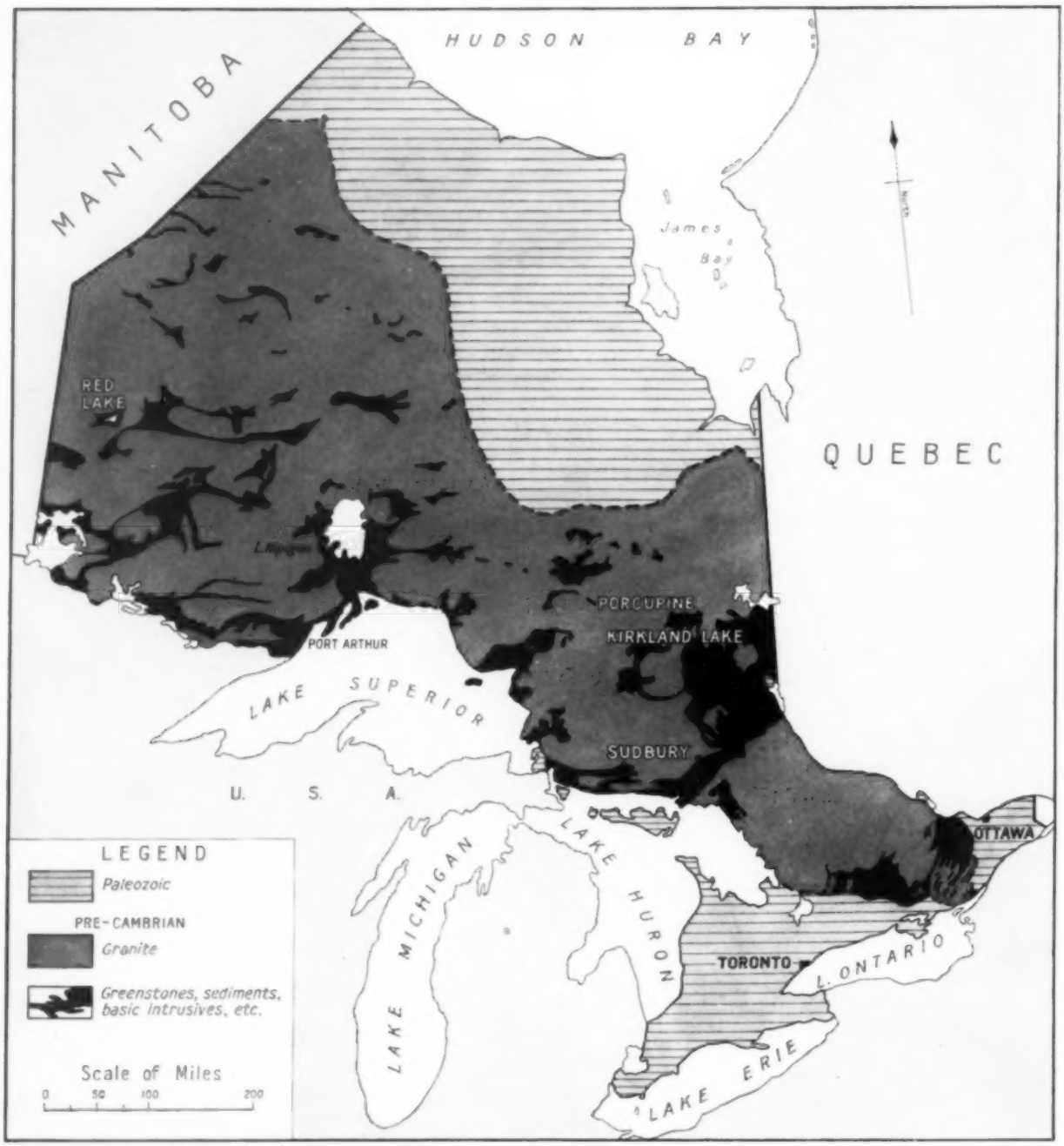
First trainees land on Canadian soil.

First Australian wings parade in Canada

Air Minister Power welcomes first contingent to Canada. Behind him, left to right, are: Sir William Glasgow, Lt.-Gov. Hamber, AVM Breadner, R.C.A.F., and AVM Goble, R.A.A.F.

Sir William Glasgow congratulates an Australian graduate.

Prime Ministers meet at Uplands Airport, Ottawa. Left to right—: Mr. Menzies, Mr. Mackenzie King, Mr. C. G. Power, AVM Breadner, R.C.A.F.; in background, Sir William Glasgow, AVM Goble, R.A.A.F., Sir Shuldham Redfern



Drawn by J. Ledingham

GEOLOGICAL MAP OF ONTARIO

North of The Great Lakes Lies Treasure

by **MAURICE TREMBLAY** *

NOBODY could be so credulous as to believe the story of Hans Pfaal. Imaginative Edgar Allan Poe says that this air-minded Dutchman ascended to the Moon, and, what seems more incredible, returned to his native Rotterdam to boast of his achievement. Imagination is a useful vehicle, and, as distance enhances perspective, we will borrow Hans Pfaal's balloon and the all-seeing eyes of some fabulous hero of the comic strip to look down upon the wonders of an animated map of Ontario from a few hundred miles up in the stratosphere.

From an arrow-pointed tip gouging far to the south-west into the blue waters of three of the Great Lakes, the elongated form of Ontario sprawling below us would suddenly broaden into a verdant lake-speckled carpet of spruce and pine as far north as the rugged shore-line of briny Hudson Bay, and away to the west to the very edge of the Manitoba prairie. Like the web of a gigantic spider, the thin white lines of the modern transportation systems of Ontario should stand out as evidence of the magnitude of the economy of the province, which, from the point of view of its comprehensive mining industry, forms the subject of the present story.

Prior to the existence of the Geological Survey of Canada, the area north of the Great Lakes was largely unknown. Up to the time of the war of 1812, a meagre population subsisted on farms confined to the shores of Lake Erie and Lake Ontario, and mining activities were concerned chiefly with iron and gypsum. Settlements were widely scattered and transportation was difficult. There were no railroads and the few roads connecting neighbouring settlements were not much better than trails. Transportation was chiefly by boats plying the Great Lakes.

To the north extended an unmapped wilderness of forests, lakes, and rivers inhabited only by scattered bands of Indians and a few Hudson's Bay Company employees. The only commercial product to emerge from this wild country was fur, and the busy settlers to the south had yet no reason to suspect the existence of mineral wealth. Before 1859, however, prospectors had begun to search this hinterland for iron and copper. Mineral development was slow. The absence of transportation facilities and the lack of maps, coupled with the rugged and inhospitable country, made prospecting a hazardous venture both for the prospector and the investor.

This picture soon changed. The amazing developments which have taken place in Northern Ontario during the past hundred years have transformed an unproductive wilderness into one of the world's richest mineral areas. This development may justly be attributed to the heroic efforts of the pioneer prospectors and to the scientific work of explorers and geologists.

The Geological Survey of Canada was founded in 1842 by William E. Logan, who became its first director. Under his leadership, the important work of exploration, previously done chiefly by bushmen and prospectors, was systematically carried on by the Geological Survey as a government service and included the compilation of geological maps and reports. It was by means of work of this character that the unknown area north of the Great Lakes was first made known to the public. In this regard, it is interesting to know that much of the early work of the Geological Survey of Canada was done in Ontario by Logan himself. He was the first geologist to recognize the existence and mineral possibilities of the large area of Precambrian rock which covers most of Northern Ontario. This area is now justly recognized as one of the world's mineral treasure chests. Under Logan's direction, the Geological Survey of Canada attained a world-wide reputation for scientific achievement. In recognition of his services as an explorer and scientist, Logan was knighted by Queen Victoria in 1856. The brilliant services rendered by the members of the Geological Survey of Canada during its one hundred years of achievement may largely be attributed to the inspiration provided by Sir William Logan. A few

* *Statistician, Ontario Department of Mines*

Thriving communities complete with all modern conveniences follow mining development in Northern Ontario. Section of Timmins with Hollinger golf course in foreground

years ago, the Geological Survey was merged with the Department of Mines and Resources of Canada.

Compared with the Geological Survey of Canada, the Ontario Department of Mines has had a fairly short history. Nevertheless, during the fifty years of its existence, it has performed many outstanding services.

During the early history of confederation, before mining became an important industry, the mining laws of Ontario were administered by the Ontario Government by means of "Orders-in-Council". Owing to the developments resulting from important discoveries of copper and nickel at Sudbury in 1884, mining activities expanded rapidly. The magnitude of the Sudbury deposits was sufficient to ensure mining operations for many decades. Interest was widespread, and public opinion demanded that the Ontario Government take a more active part in the administration of mining affairs. This demand culminated in 1891 in the formation of the Ontario Bureau of Mines. The Bureau was attached to the Ontario Department of Lands and Forests. Its immediate purpose was the administration of the mining laws of Ontario, and its ultimate object was the fostering of the mining industry.

The creation of the Bureau of Mines came at an opportune time at the beginning of a period of unparalleled mining development. In quick succession, over a short period of years, many valuable minerals were discovered throughout Northern Ontario. The services of the Bureau of Mines expanded with the growth of the mineral industry. By 1920, these services had become so important that a separate government department known as the Ontario Department of Mines with a minister in charge was created to take over the work of the Bureau.

The Ontario Department of Mines now administers the mining laws of the province. For administration purposes and for the conveniences of the mines and prospectors, Ontario is divided into several mining divisions, each having a resident mining recorder.

The compilation of maps and reports of mineral areas, begun previously by the Geological Survey of Canada, is now largely carried out by the Ontario Provincial Geologist and his staff.

A provincial assay office is maintained at the Parliament Buildings in Toronto. Prospectors are entitled to a limited number of free assays. The Timiskaming Testing Laboratories are maintained at Cobalt. Here prospectors and operators may submit small lots of ore for sampling and assaying. Provision is also made for the purchase of parcels of ore from small operators.

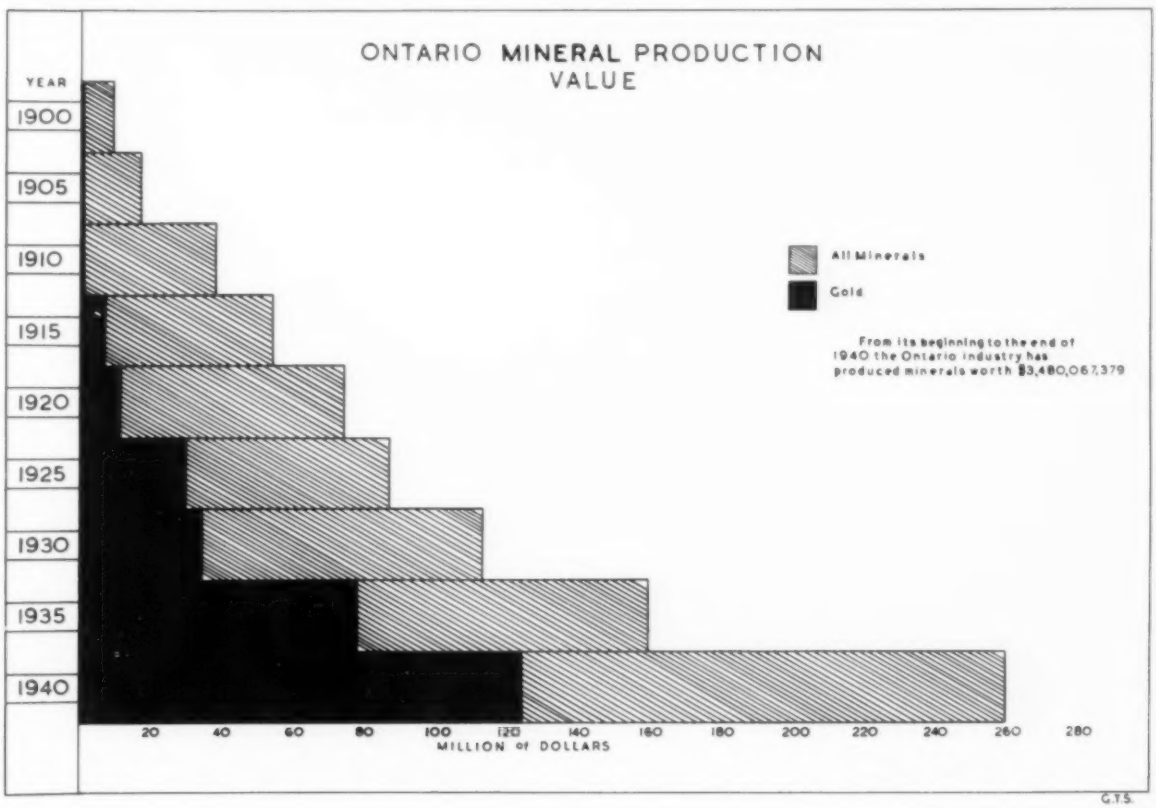
The duties of the Chief Mining Inspector of Ontario and his staff include periodic examination of the mines and their equipment. The purpose of such inspections is to guard the mine workings and to protect the health and safety of the employees.

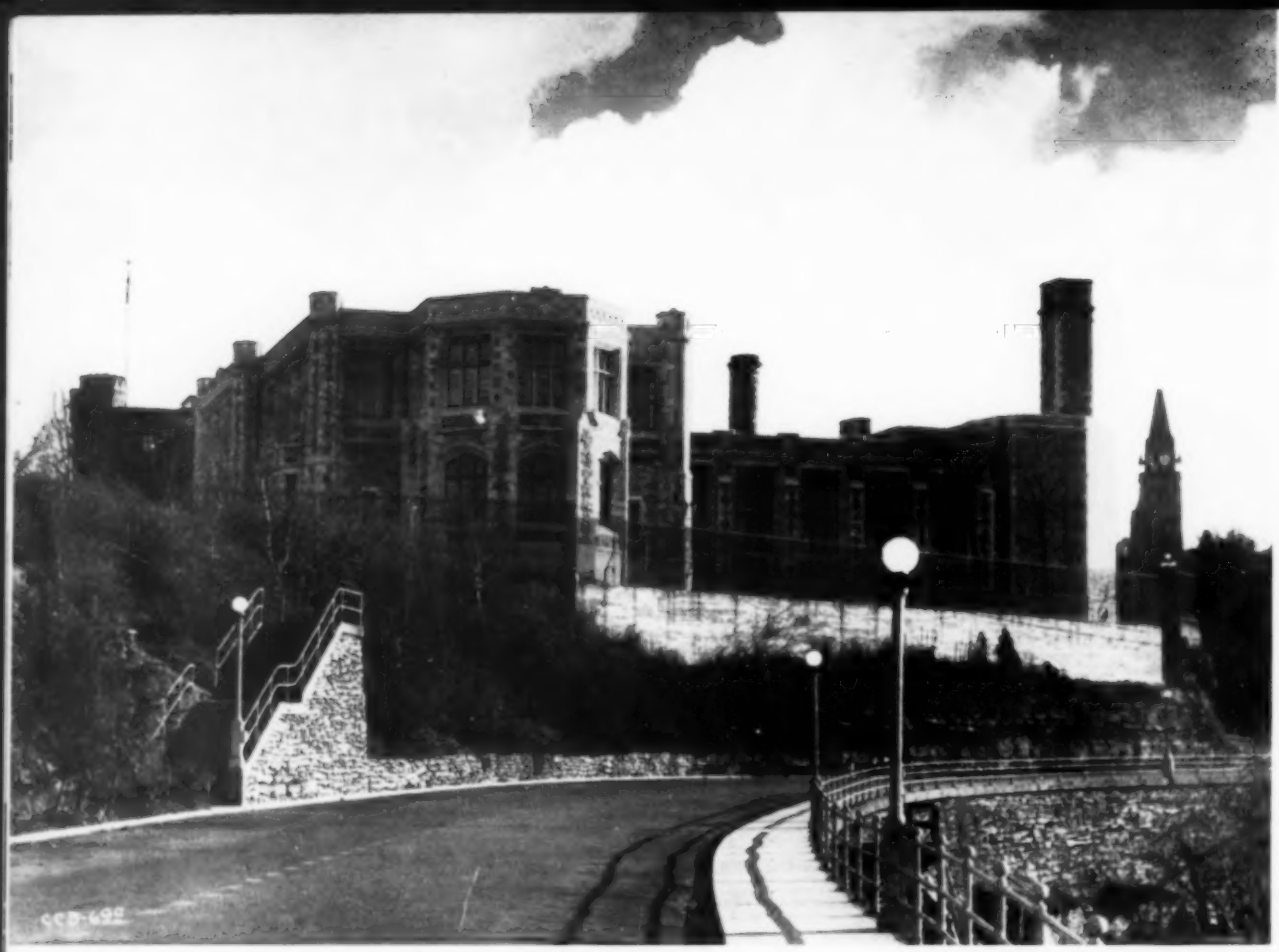
Disputes regarding mining matters are first adjudicated by the local mining recorder, or on appeal by the Judge of the Mining Court of Ontario.

Numerous other government services include classes for prospectors, the distribution of blue-prints showing mining claims and the dissemination of mining knowledge. In recent years, the Government has provided assistance in the building of mine roads and in supplying mines with hydro-electric power.

It is now just half a century since the organized administration of mining affairs was first introduced in Ontario. The Ontario Department of Mines, developed directly from this movement, is now widely recognized as a useful and permanent institution. Its efficient services are being carried on by an attitude of intimate co-operation with the members of the mining industry.

It is evident that the Department owes its existence to the development of the abundant mineral resources which occur in the prolific subsoil of the province. There would be no Department of Mines of Ontario to-day had not Mother Nature presented us with a few hundred thousand square miles of mineral-bearing rocks a billion years ago.



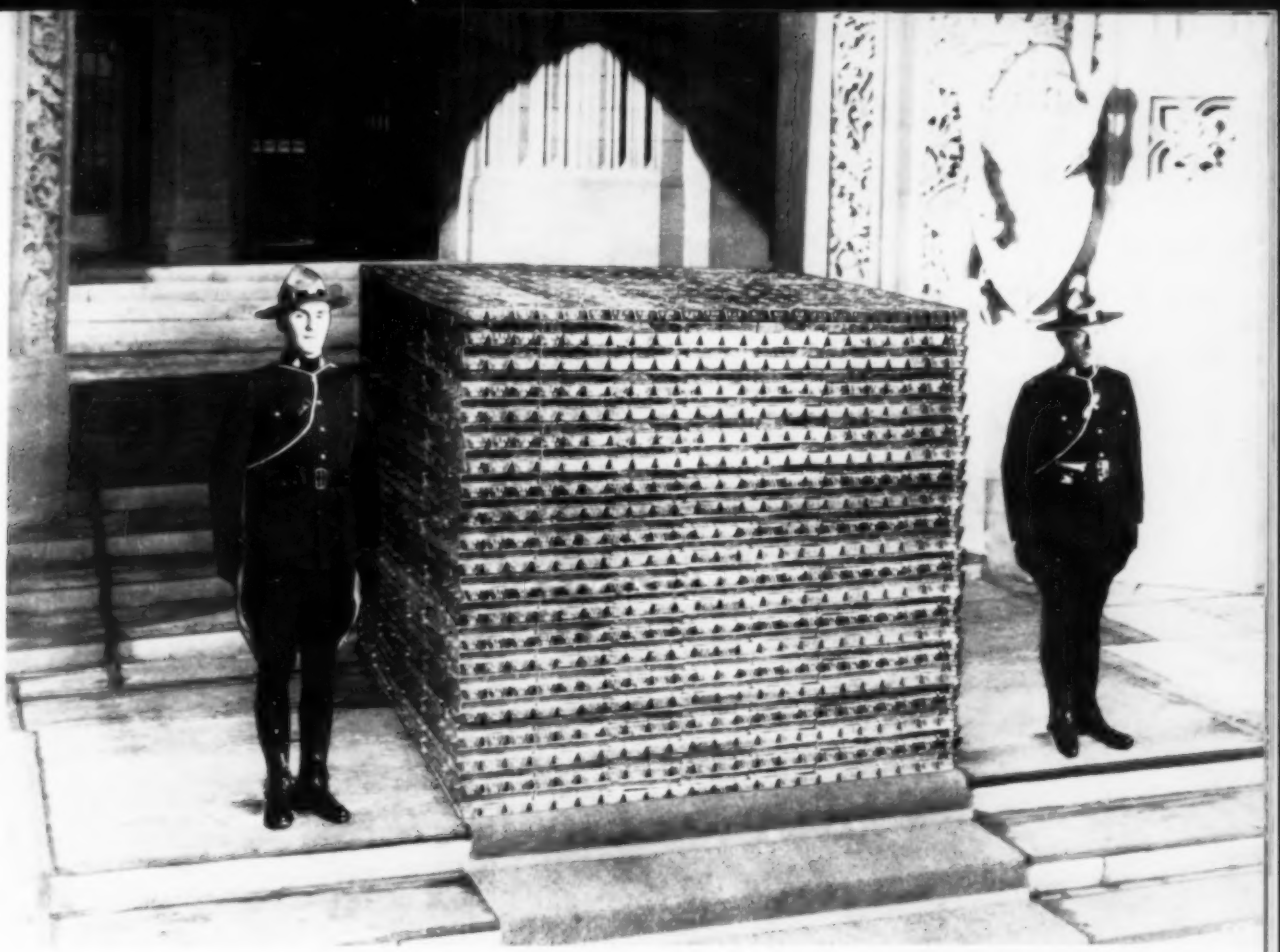


The new refinery wing of the Royal Canadian Mint from Lady Grey Drive, Ottawa

Voltaire was awed by the clock-like regularity of planetary movements. Had he known about the geological events which had taken place beneath the "Leagues of Snow" — his pet name for Canada — he would have found another great manifestation of nature to puzzle him.

But the rocks of Ontario have a way of talking as all rocks will to an attentive listener, and this is what they have told a geologist about their early life.

The first event, they say, was the accumulation of a great thickness of lavas (Keewatin) on a land surface, over which were scattered numerous fresh-water lakes. This volcanic activity occurred right across Ontario from east to west, but when vulcanism ceased in the south-eastern part of the province, the sea advanced over the land, and a great thickness of limestones (Grenville) was laid down. These two events took place over a period of millions of years. Toward the close of this time forces within the earth were becoming more active, and finally the Keewatin lavas and Grenville rocks were thrown into mountain ranges by the buckling of the earth's crust, possibly accompanied by intrusions of granite (Laurentian). The mountains were gradually worn away, the boulders, sands and muds derived from them being accumulated in numerous basins to form what is known as the Timiskaming series. This sedimentation was brought to a close by another, more intense period of mountain building and granitic invasion (Algoman). Then followed a long period of rock decay. This time the climate had turned very cold, and the country from Sudbury north-east through Cobalt is believed to have been covered by a great ice-sheet, which, on its retreat, left boulder clay and varved clay (Cobalt series). Elsewhere sands and clays were deposited in shallow water basins on land, while in the Lake Superior region the sea advanced over the land, and muds (Animikie) were laid down. As the seas retreated a desert climate prevailed and vast thicknesses of

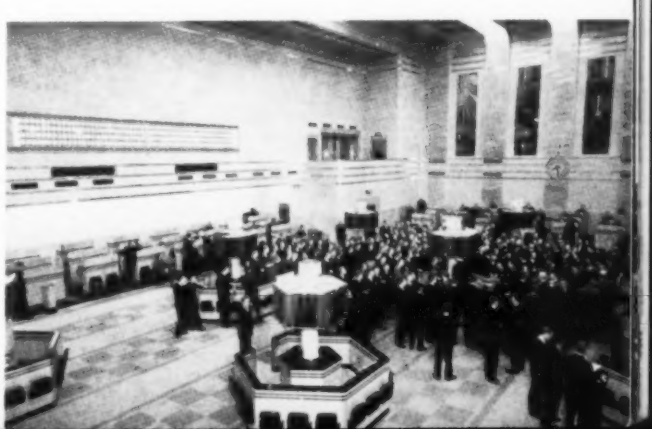


A composite photograph representing Canada's refined gold output of a recent year. In the photograph are nine thousand bars, each of which weighs 400 ounces, the total value being 140 million dollars. Ontario's production in 1940 amounted to about 124 million dollars

sand accumulated, followed by great outpourings of lava, the latter mainly in Michigan and at depth in the earth's crust basic fluid rock was emplaced (Keweenawan). Finally, a third period of mountain-building and granite intrusion (Killarney) occurred, bringing to a close a billion years of earth history. This is the Precambrian, and the area underlain by these rocks forms the pre-Cambrian shield.

Only portions of the rest of earth rock sequence are present in Ontario, and their history is very different. Now we are concerned with frequent advances and retreats of the sea over the continent and the accumulation of sand, muds and limey oozes on shallow shelves. Local desert climatic conditions resulted in the formation of salt and gypsum. These rocks are found in south-western, eastern, and north-eastern Ontario and may once have been continuous from north to south.

Lastly, a million years ago the northern



Floor scene on the Toronto Stock Exchange, traders receiving instruction prior to opening

hemisphere experienced an ice age, and a continental glacier covered all of Ontario and extended far south into the United States. This glacier picked up and ploughed off all the loose decayed rock accumulated for millions of years on the surface of the earth, and, where it reached solid rock, scratched and polished it. As the glacier withdrew northwards, clay, sand, gravel or boulders were left behind, and in the Great Lakes region and elsewhere lakes were formed in front of the retreating ice-sheet and varved clays were laid down in them. In the Hudson Bay region and Eastern Ontario, the depression of the land by the ice remained after its disappearance, and the sea invaded these areas. These events constitute the Pleistocene. Now in the Recent, a typical landscape in Northern Ontario shows an even sky-line with the low ground between the polished and scratched rock hills floored with boulder clay or other deposits of the Pleistocene ice age.

The pre-Cambrian shield is Canada's treasure-house, and Ontario has a large share of its riches — gold, nickel, copper, and many other ores of lesser importance. How do these occur, and where do we look for them? Gold is the most valuable metal produced in Ontario, and for it we must look to those areas in the shield underlain by Keewatin lavas and Timiskaming sediments cut by Algoman intrusives. The mountain-building forces of Algoman time buckled the Keewatin and Timiskaming rocks into a series of folds, the upfolds being anticlines and the downfolds synclines. The forces continued after the formation of these folds with the development of numerous fractures, and even faults in them, and these openings were filled with gold-bearing quartz "veins". These gold veins were formed at great depth. The long-continued decay of the Algoman fold-mountains through millions of years resulted in the removal of the anticlines and much of the upper part of the synclines of the Keewatin and Timiskaming rocks, so that the granite intrusives are now exposed at the earth's surface, and the Keewatin and Timiskaming rocks form bands or belts surrounded by the Algoman granite. The debris which mantled the earth's surface despite the work of rain, snow, frost, wind and river action was shifted by the action of the great continental glacier of the Pleistocene ice age. The removal of this debris has, therefore, exposed vein occurrences in some places, but elsewhere many undiscovered mines probably lie hidden beneath glacial drift. The fundamental structure, a syncline of Keewatin and Timiskaming rocks intruded by Algoman granite, is found at all the great gold camps such as Porcupine, Kirkland Lake, Larder Lake, Little Long Lac and elsewhere in the shield area.

The Keweenawan period is of the greatest economic significance to Ontario and the world, as it was in this time that the world's greatest storehouse of nickel

Prospectors, La Rose Mine, May 1904, on site of Cobalt, left to right:— S. N. Graham, S. F. Kirkpatrick, R. Anson Cartwright, W. P. Wilgar, Chatfield Ross, Alex Longwell, F. D. Reid, T. F. Sutherland, Vincent Gleason, C. W. Knight

Courtesy R. Anson Cartwright

Courtesy The Northern Miner

Group of veteran Ontario prospectors, standing, left to right: — J. A. Borthwick, E. H. Horne, K. J. Springer, Gilbert La Bine, the late L. F. Springer, W. E. Segsworth; seated, left to right: — Tom Montgomery, Jack Wilson, Russ Cryderman, Fred M. Wells, J. R. Jowsey

was formed. Copper is an important partner in this occurrence. At Sudbury, there is a great boat-shaped area, thirty-six miles long and seventeen miles wide, the boat's shell (the nickel irruptive) having an outer half of a dark basic rock and the inner half of a light acid rock crystallized from a common source of fluid rock. This boat-shaped structure, known as the Sudbury basin, owes its origin to the mountain-building forces of Killarney time, which buckled a sheet-like mass of rock lying between Animikie sediments and a Keewatin floor into a concave structure, which long-continued decay now exposes at the surface. Owing to the forces leading up to the Killarney mountain-building, numerous fractures occurred at the outer margin of this upturned sheet-like mass and were filled with ores carrying nickel and copper with lesser amounts of the platinum group of metals, gold, silver, selenium and tellurium, derived from the same source as the nickel irruptive. These same forces caused fissuring and faulting of the Animikie sediments within the basin, and from the same mother source came ores of lead, zinc, gold and silver, deposited in quartz veins.

The Cobalt series forms a circular area of some 5,000 square miles between Sudbury, Cobalt, and Gowganda, in which are exposed numerous areas of a basic igneous rock (diabase) of Keweenawan age. Minor areas of Keewatin lavas are present. Associated with the diabase are the famous silver deposits of Cobalt, South Lorrain, and Gowganda. These are veins of carbonate carrying native silver and a variety of minerals containing cobalt, arsenic, antimony, nickel and bismuth. Most of the ore (eighty per cent) at Cobalt has come from veins in the Cobalt conglomerate just below the Keweenan diabase. These veins fill fractures or faults developed in the Cobalt series, in the Keewatin lavas, and in the Keweenawan diabase sheet itself.

In the area between Georgian Bay,

1

2

3

4

5

PROSPECTORS

1. Washing for colours
2. On the search for minerals
3, 4, 5. Typical camp scenes

9

8

AT WORK

6. Prospectors and their mascot
7. Corner posts of claims
8. Trenching
9. Drilling for surface blasting

7

6

Type of aerial photograph now in use by prospectors which greatly facilitates concentration of efforts. Typical mining country, Larder Lake, Ontario.

Ottawa and Kingston, a great variety of mineral deposits occur associated with the Grenville limestones, Keewatin volcanics, and granite intrusives, which have yielded varying amounts of feldspar, mica, talc, fluorite, graphite, nepheline syenite, corundum, apatite, and molybdenite.

The iron deposits of Steep Rock Lake are under active development at the present time. Keewatin and Timiskaming rocks have been folded into a series of anticlines and synclines, which have minor folds and a series of faults in the synclines. In some of these faults iron-bearing solutions circulated, and from them have been formed large deposits of hematite — an ore carrying sixty per cent iron.

The sandstones, shales, and limestones which overlie the pre-Cambrian rocks in Southern Ontario and in the Hudson Bay region are important sources of structural materials, clay products, and in south-western Ontario of gas, oil, salt, and gypsum. South of James Bay on the Mattagami River are lignite fields and deposits of fire clay.

The discovery and development of the mineral heritage of Ontario is a story that captivates the mind as much as does the geological history of the origin and formation of the ore deposits. Years of desultory effort preceded the amazing succession of important finds which established the province as one of the richest mineral-producing areas in the world.

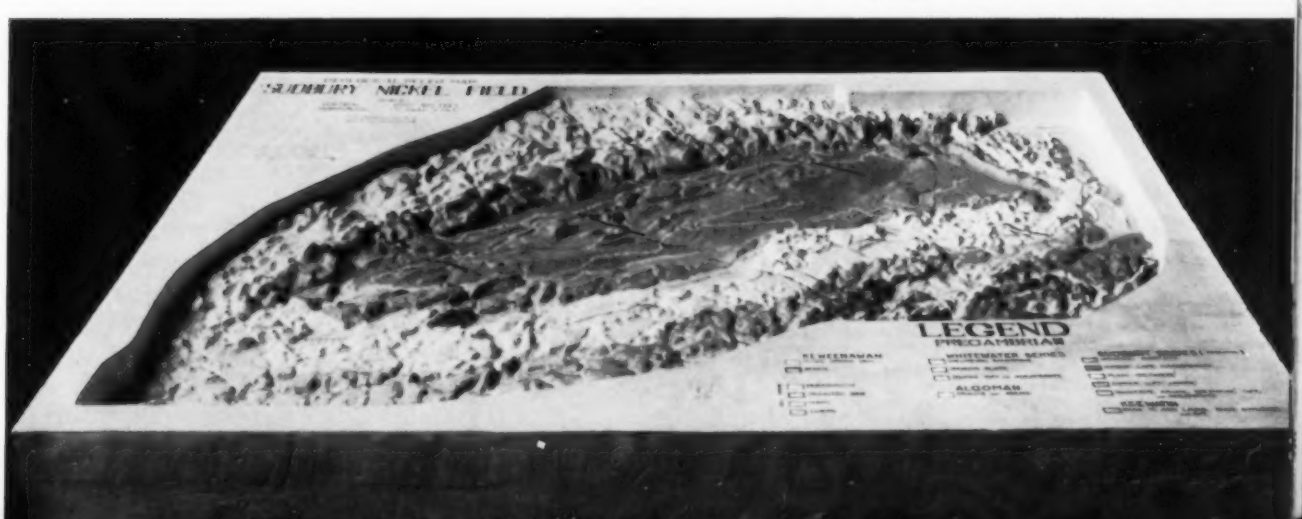
The forward march of Scottish and Irish settlers in south-eastern Ontario and the progression of other settlement on the shores of the Great Lakes as far west as Port Arthur and Fort William revealed some of the mineral riches nature had hitherto so jealously guarded. Proof of the existence of useful minerals in Ontario appears in the papers of the Canadian Archives and other official documents.

Long before iron had been successfully smelted on the Gananoque River, in Eastern Ontario, in 1800, there had been evidence of mineral occurrences in the province. The mining of iron ore continued here and at other points in the province, but the high cost of production, coupled with the difficulty in treating the ore, soon put a stop to the efforts of operators and disillusioned investors. It was only much later that iron mining became profitable.

Official figures state that prior to 1891, the year of the formation of the Ontario Bureau of Mines, metals worth $9,520,269, were produced. No figures showing the output of non-metallic minerals up to that date are available. In the year of 1900, the total output of the mining industry amounted to $9,298,624 — a very respectable figure of production in those days. Within the comparatively short period of forty years, the annual value of minerals mined within the province progressively increased and to such an extent that in 1940, a record output value of $262,098,546, was reached.

New wealth worth $3,480,067,379, has been earned by Ontario miners since the humble beginning of the industry, and this formidable accrual of capital explains Ontario's favoured position in the economy of Canada.

Geological relief map of the Sudbury nickel field, source of about ninety per cent of the world output of nickel
Courtesy Royal Ontario Museum of Geology



Power! From spinning turbines the electric power is carried to the mine by high-tension wires of Ontario's own hydro-electric system.

Some of the old stalwarts of the industry which, though in steady production for more than a quarter of a century, continue to be among the leading contributors to the gold output.

Centre:—McIntyre

Bottom:—Kirkland Lake

Right: — Ontario supplies the world with 90 per cent of its nickel. Section of refinery plant at Port Colborne

Associated Screen News Ltd. Photo

Centre:—Lake Shore

Bottom:—Hollinger

Curiously enough, the railways played a vital part in the making of the mining history of Ontario. Two of the most important mineral discoveries ever made in the course of the history of man are attributable to the projection of the railways in Northern Ontario. The first — one of extreme importance — revealed in 1883, huge deposits of nickel and copper when the Canadian Pacific Railway, then under construction, had reached what is now the flourishing city of Sudbury.

Here, in the midst of what appears as rock-strewn desolation, centres one of the greatest industrial units of the world. For it is at Sudbury that ninety per cent of the world's nickel is recovered. Here, on the rim of the nickel range great mines bring to the surface millions of tons of nickel-copper ore to satisfy the requirements of a metal-minded era. Not far from Sudbury is located the Frood Mine. Its importance as a constant source of nickel and copper dates from 1925. It is appraised to-day as the world's most valuable mineral deposit and it is the largest producer of copper in Canada. Its ores constitute the leading source of platinum in the world. The discoverers of Frood died in abject poverty.

The early history of Sudbury is complicated, and it is sufficient to mention that the nickel-copper industry is now controlled by two companies, of which the International Nickel Company of Canada is by far the more important. Since its origin, this industry has produced minerals of an estimated value of $1,046,733,658, and disbursed dividends to the amount of $297,519,812. It regularly employs more than 11,153 wage earners who received wages amounting to $19,372,752 in 1939.

Twenty years after the discovery of nickel at Sudbury, the Temiskaming and Northern Ontario Railway was under construction, and some of its employees accidentally discovered silver at Cobalt. This find, following closely on the heels of recent great rushes, electrified the world. The deposits were extremely rich, and Cobalt soon became the mecca for thousand of adventurous souls in search of fortune. There is no doubt that the discovery of nickel and copper at Sudbury and silver at Cobalt was traceable to luck rather than to scientific prospecting.

Mining development in Ontario forged ahead from the date of the discovery of silver at Cobalt. For it was at Cobalt that many of the great mining fortunes were made.—fortunes that were later reinvested for the development of mines

Mechanized transport and hydro-power facilitate development of mining properties.

Surface plants of two of the newer Ontario gold properties. Right: — Kerr Addison Mine in Larder Lake area. Below: — Newest Ontario producer, Hoyle Gold Mine, Porcupine

Courtesy The Northern Miner

subsequently discovered in other parts of Ontario and Canada.

Fabulous Cobalt, which produced nearly $300,000,000 in silver from the mining of its complex ores, distributed dividends and bonuses worth more than $100,000,000 to shareholders. To-day, it has become comparatively insignificant in the mining economy of Ontario. It still remains, however, the principal source of the useful metal cobalt in the western hemisphere.

Besides creating millionaires and establishing Ontario as an important producer of minerals, Cobalt was the cradle of the great prospecting fraternity of Canada. It launched hundreds of competent mine seekers who spread out in all directions in quest of another bonanza. Their persistence was soon rewarded, for, in 1909 at Porcupine, they found the pot of gold at the foot of the proverbial rainbow. The mining camp which grew up around the original discovery is now the largest gold producer of the western hemisphere, boasting a modern city of over 25,000 souls, and nineteen producing gold mines, which employ 8,511 wage earners, who receive $15,338,238 each year for their work.

Canadian history tells us that in the early days of the colony, Canadian-born swash-buckling d'Iberville had passed through the heart of Cobalt and Porcupine on his memorable expeditions to Hudson Bay, and that the presence of mineral riches had been brought to his attention on the long trek from Montreal to the great northern sea. But d'Iberville and the many voyageurs who followed him northward found it more expedient to draw a rapier or seek new sources of peltries than to "poke" in the fabulously rich host rocks which gilded their trail to immortality in the Hall of Fame of Canadiana.

News of the discovery of Porcupine stimulated the prospectors to more intensive activity in the area lying north of Cobalt and south of Porcupine. Two years after the epochal discovery of the first

High grade gold quartz ore. The three specimens shown contain gold to the total value of about $3,500. At the bottom is a diamond drill core showing veinlets of gold.

Courtesy Dome Mines

Pouring the gold into moulds

Gold miners at the lunch hour

major gold camp of Ontario, W. H. Wright stumbled on a showing of native gold on the shores of Kirkland Lake. His discovery heralded a great gold rush in Northern Ontario, which resulted in the creation of another gold camp of the first magnitude.

Since their beginning, Porcupine and Kirkland Lake have produced gold bullion valued at $1,027,829,511., and the successful operation of their mines has given to their shareholders dividends and bonuses amounting to $353,535,583.

The steady production of these two major camps surprised the more conservative technicians who had turned thumbs down on Ontario as a potential gold producer. The old argument of "fissure gold" as some of the continental geologists scornfully described Ontario gold mines, had rebounded against their limited judgment, and the gold mining industry of the leading province of Canada was firmly established, not by theory, but by fact. It should be stated here that many Canadian geologists had guardedly implied that certain sections of Northern Ontario "invited prospecting". One of the first technicians employed by the Ontario Government definitely stated that he had found gold on several occasions in Shaw township, which is just south of the Hollinger mine. For that matter, had not a great number of trained men expressed faith in the mineral potentialities of Ontario before the Royal Commission investigated the mineral resources of the province in 1890?

The mining industry of Ontario owes its present strength to the persistency of the prospector and the gambling instinct of the small liberal-minded capitalist, both of whom prayed for quick financial independence; to the farsightedness of the Federal and Provincial Governments at Ottawa and Toronto, and, finally, to the application of the geologists dispatched by the authorities to coordinate the geological information so vitally important to the successful development of Ontario's vast mineral realm.

The glamorous and romantic atmos-

(1) Geophysical survey party taking readings with the compensation unit

(2) Dragline excavator removing overburden preparatory to blasting down from underground

(3) Steam operated diamond drill, near Kirkland Lake

(4) Pushing car of ore out of mine tunnel

ONTARIO'S IRON MINING OPERATIONS

Above: — Steep Rock
Left: — Sintering plant of Algoma Ore Properties Limited

Scenes at the New Helen Mine

Right: — The open pit

Below: — Railway siding

phere which inevitably accompanies an important mineral discovery always manages to relegate the original creative forces to the background. That is why the government technicians who had so often intimated the presence of economic deposits of gold, iron and copper in their conservatively edited texts found little public interest.

Those who have followed the development of the mining industry of Ontario will agree that in the majority of important discoveries the original clue was always to be found in the reports of the Geological Surveys of Canada or those of the Ontario Department of Mines. Little Long Lac, east of Lake Nipigon, Red Lake, a few hundred miles to the north-west, and Steep Rock Lake, 140 miles west of Port Arthur, where a very large body of hematite iron ore has recently been indicated, support this contention. They are only a few of the many instances where government geological services have undisputably proven their value.

The mining industry of Ontario is a great machine made up of very delicate parts and it runs very smoothly. Some 35,000 skilled men, each of whom receive better than $1,700 for a year's work, see to that. These are the miners who toil many thousand feet below ground to blast the ore that will feed the mills on the surface.

It is estimated that these hard-working Canadians are responsible for the welfare of 150,000 dependants, who form the nucleus of the population of the cities and towns of Northern Ontario. In many cases they own the houses in which they live and they spend their money freely. That explains the prosperity of all the mining centres of Northern Ontario.

The Ontario miner is the most satisfied industrial worker in Canada, and a great deal of credit for this goes to the intelligent attitude of the mining companies toward their employees. Many of the older mines in the large gold camps of Northern Ontario have made it a practice to place

Transportation in the old days had its difficulties; the corduroy road, the canoe for heavy equipment, mud roads over bog land represent a few.

the sons of their employees on the preferred employment list. The picture of father and son working in the same stope is not uncommon.

The number of wage earners employed by the mines has increased with the progression of the industry. The war has stimulated production, but it also has dried up sources of capital, which would, in normal times, bring new mines into production.

Comparatively few mines have been added to the list of producers since the beginning of the war, and the production peak has been rising at the cost of the gradual exhaustion of known reserves. Without new properties upon which primary exploration justifies the expenditure of further capital to determine their relative utility in the future of Ontario's mining economy, the time may come when the production curve cannot rise any higher.

The geology of the province, however, suggests that there need be no fear of exhaustion, provided finances are forthcoming to supplement the work of the prospector.

The exploitation of new mines has been simplified by our improved knowledge of the sciences of geology, mineralogy, and mining engineering. To the advancement of science add the steady growth of the Ontario Hydro-Electric system, which supplies power and fuel to the most remote mining camps; the projection of excellent highways and mining roads throughout the north country, and the reliable air services which transport freight and passengers to all the mining camps in a matter of minutes, have supplemented the many railway facilities which already existed. Transportation in Northern Ontario is not the problem it was twenty years ago.

All these facilities have brought a vast heritage of potential mineral wealth to our very doors. The mining pioneers have shown their mettle by overcoming seemingly insurmountable difficulties, and have succeeded in making Ontario known as one of the great mineral treasure houses of the world.

Thousands of square miles of potential mineral-producing areas in Northern Ontario beckon to the prospector and the investor. To those whose vision is strong and whose faith remains unshaken in the face of the great tragedies of the day, the challenge is thrown.

Modern transportation is streamlined — highways, railroads and aeroplanes combine to speed up exploration and production immeasurably

CANADA'S HUTTERITE SETTLEMENT

by C. FRANK STEELE

CHECKERBOARDING the broad, productive plains and foothills of southern Alberta are located the majority groups of a people who are practising the old apostolic order of "all things in common". They are the Hutterian Brothers, or Hutterites as they are called by their Canadian neighbours, not a few of whom look questioningly as "daughter colonies" spring up in unexpected places to take care of the overflow from the parent settlements. The Hutterites' reputation for being "good-pay" facilitates acquisition of new lands from old settlers by purchase.

These people, clinging still to the German language, and resembling in dress and habits a bit of primitive Europe planted in a New World setting, present one of the most absorbing of studies in Canada's immigration picture. Some residents of the West see in the Hutterites a social problem; others see in them simply a picturesque addition to our numerous racial varieties.

The latest authentic figures available — the spring of 1940 — give the total membership of the Hutterite groups throughout the world as 5,742 souls living in fifty-two communities. These groups or "Bruderhof" communities were listed at that time as being in South Dakota and Montana in the United States, in Manitoba and Alberta in Canada, and in England. Although South Dakota was the first home of the Hutterites in America, that State to-day has only five colonies, and there is

Above:—Hutterite children

Left:—Hutterites have some of the finest farms in the Canadian West. Harvest time in the colony.

Photos by J. Rosettis

one at Lewistown, Montana. There are fourteen colonies in Manitoba, thirty in Alberta and two in Great Britain.

The two communities in England, at Ashton Keyes and Oaksey, Wiltshire, known as the Society of Brothers, really grew out of the flight of the Brothers from Germany during the rise of Hitlerism. Hutterian leaders state that due to the intensification of the totalitarian spirit in Germany the Bruderhof was forced to leave. In 1934 a group found a temporary retreat at the Alm-Bruderhof, Triesenberg, in the principality of Liechtenstein. Two years later another group of the same community settled in England founding the Cotswold Bruderhof at Ashton Keyes. There was set up in this community a printing and publishing house, from which has come valuable source books and tracts on Hutterian faith and history. During 1937 this group was joined by the remaining Hutterites in Germany as their communal holdings had been confiscated by the Reich Government. Thus the whole German "church" was reunited in the free atmosphere of England. Since the outbreak of war, however, many are immigrating to Paraguay, South America.

In connection with the old German communities there exists an important link with the Hutterian church in Canada. This was the reception into the body of the church on December 9, 1930, of Eberhard Arnold at the Stand-Off, Alberta colony. He was ordained, subsequently, into the ministry of the church with "the laying on of hands by the elders", according to the official record signed by that noted Hutterian minister and scholar, Elias Walter. Eberhard Arnold, a man of education and travel, planned an exhaustive history of the Hutterian church covering the four centuries of its existence. Death intervened, however. He died in 1935, but not before he had visited the North American communities, gathering material for his projected history. A brief treatise on the Hutterian movement he did complete, one of the very few books in English on this subject.

Like the Israelites of old, the Hutterites have been a wandering people. This impulse, however, cannot be traced to any wanderlust, but rather to physical pressure imposed on them. This pressure often took the form of violent persecution, and the pages of Hutterian history tell the story of many martyrdoms. While numbers of the Hutterian "immortals" died at the hands of their enemies, one may search in vain for an instance where one fought back. The Hutterites from the beginning have adhered to a policy of unconditional non-violence. Theirs is not the way of retaliation. They have always "turned the other cheek". This ideal, though it has called down storms of criticism, hardship and death, has persisted. They are against war and teach this hatred of war to their children. You will find no Hutterites in Canada's armed forces for they have claimed and have been granted, by the federal authority, immunity from military service along with other conscientious objectors.

The Brothers, however, look upon governmental authority as an "ordinance of God", and as one of their preachers put it: "Every day we pray for the Canadian Government and its leaders". And Hutterite school children sing *O Canada* and *God Save the King* as lustily as do other children. They have even tried *There'll Always be an England*.

The Hutterites are often confused with the Mennonites. While the two had a common origin, they are entirely separate, although doctrinally their teachings in some respects are the same. On one vital point they differ. The Hutterites have stuck with remarkable tenacity to the doctrine of communal living — they like to describe it as a community on a Christian communistic basis — whereas the Mennonites live individualistically, and, in contrast to the peculiar style of dress of the Hutterites, adopt the accepted styles of the country in which they live. The Hutterite operates within his own group, having little contact with the "world outside"; the Mennonite operates his own farm or business in the ordinary way, becoming a part of the general community life. He may and usually does live in a Mennonite settlement, yet he will cooperate with others, and eventually become naturalized. The Hutterite holds himself aloof from other people other than those of his own faith; he does not fraternize except in a casual way, although the friendship of others is appreciated. He, moreover, does not, as a rule, become a citizen.

The Mennonite children attend the public schools of their town or district, the Hutterites have their own colony schools, where German is taught after regular school hours. Thrift and honesty, husbandry and handicrafts are taught in the

Fifteen-year-old Hutterite girls taking care of the children.

home. Higher education is not for them. A radio, possibly a piano, may be found in a Mennonite home, but not in that of a Hutterite. Pictures will adorn the walls of the Mennonite home; only bare, hard walls and the simplest of furnishings greet the eye in that of a Hutterite family. A Mennonite girl might boast a "permanent" in the most modern manner, her Hutterite sister must be content — but is she?—with rolling her locks under a drab little bonnet, with no mirror to assist her in arranging her bonnet.

Such things are "worldly" to the inherently fundamentalist mind of the Hutterian folk. Their ideal is the lowliest, the plainest of living and the church of the complete community, as their founder, Jacob Huter, insisted was "the ark of the last days".

They avow that they are a "chosen" and select people, ever looking toward the day of the wrath of the Lord and the time of His judgments.

The Hutterian church stems back to the Reformation, and some students of this unique movement claim that it represents most faithfully the original life

Hutterite mother and her son

and programme of the Anabaptist movement. The movement really arose in the Tyrolese Alps among the Swiss Brethren, but persecution drove the disciples to Moravia, the first gathering place being Nikolsburg. In 1528 the group moved to Austerlitz, and it was near there that the Hutterian church was organized, and with it was introduced that distinguishing feature, complete social equality and the community of goods and services.

The leaders spread a coat upon the open field, and upon it they laid their possessions as a symbol of their full surrender to their faith. Jacob Huter journeyed periodically from Tyrol to the groups at Austerlitz, and in 1533 settled there, and to him soon came the reins of leadership. Under his wise guidance the organization grew, attracting many from German-speaking countries. He wanted his people to live as did the disciples of old, and this he zealously preached until he suffered martyrdom by being burned alive at the stake on February 26, 1536 (some authorities say March 3) at Innsbruck in the Tyrol.

Huter was one of the first of many Hutterian martyrs through the centuries. From its beginning the Moravian community was called "Hutterian Brothers" after Huter, and the church for which he lived and died has never disclaimed it. However, they probably like best the description: "The Brothers, known as the Hutterians".

* * *

In the colonies in Western Canada, particularly the Bruderhof near Macleod, Alberta, are to be found many very old manuscripts, letters and sermons, some dating back to the sixteenth and seventeenth centuries forming part of the bibliography of the movement. They are chiefly in German. Hutterian leaders explaining that the church retains the use of German because the authoritative Hutterian books on faith and practice are in that language and would suffer by translation. Of decisive importance to religious faith and conduct, (next to the Bible) Eberhard Arnold ranks Peter Ridemen's *Confessions of Our Religious Teaching and Faith* of 1540. There are two copies only extant in America of the 1565 edition, one being at the Rockport colony at Alexandria, South Dakota. The whereabouts of the other copy is not known to the present writer. Elias Walter of Macleod, Alberta, brought out a number of English translations of very old Hutterian manuscripts.

From Moravia to Hungary, from Hungary to Russia, from Russia to the United States, thence into Canada, the Hutterites have migrated, the United States Bruderhof communities being started from 1874 to 1877. The movement into Canada came when, during the first Great War, the United States Government withdrew exemptions from military service. That was in 1918, the first Canada-bound group settling in Manitoba. They founded eight communities near Elie, thirty-five miles west of Winnipeg. At the Milltown colony, the oldest hand-written books of the church are to be found; one colony, Plum Coulée, lies in the extreme southern part of Manitoba, and consists of lands once held by a group of Mennonites who in 1925 emigrated to Mexico. It was in 1918 that the first colonies settled in southern Alberta, Mennonite families from Russia later acquiring land near them.

Thus, by a curious turn of destiny, these two religious groups, originally one in Central Europe, were again brought together as neighbours on the prairies of Western Canada.

Apostasies from the Hutterian church are rare, conversions are perhaps even rarer, although there are instances of both. Those seeking membership are put on a period of probation for a year or more before being admitted into full fellowship. There was one large "break" in the ranks of the church, and that occurred in Russia. A number gave up community of goods and emigrated to America settling in South and North Dakota, California and Saskatchewan. One occasionally meets them today, members of the Crimean church of the Mennonite Brothers.

* * *

Western Canada's Hutterites are farmers, dry land farmers. Although southern Alberta, where the majority of the colonies are located, has irrigation, these people do not buy irrigated farms. They are large scale grain farmers, and to-day are buying power machinery. Some predict that power machinery will be the wedge that will break up the colonies, for its general use will eliminate the necessity for large numbers of hand workers and for long hours of labour. In other words, it will spell freedom to the new generation, some argue. They may be right.

Study in faces
Photo by J. Rosettis

The Hutterites are peaceful, plodding, land-loving people. They are industrious, there are no loafers, no "hangers-on". Each member of a colony, young and old, has his or her job. Each works for the whole. At the head of each Bruderhof are usually two ministers and a steward. These are elected, usually for life, by the men folk. Suffrage has not yet come to the women but that does not worry them. The steward is the key man in material things as the ministers are in spiritual matters. A work director on the farm and a house mother in the colony home assist the steward. The latter has charge of the common purse, although nowadays Hutterite funds are kept in chartered banks. He handles the business, relying largely on his own judgment, but the important step of forming a "daughter community" can be taken only by the consent of all.

No one has personal property, needs are met out of the common purse. Whoever wishes to join the community must give up all; should he leave, he takes nothing with him. The various colonies are independent of each other, and, if an exchange of goods is made between colonies, it is done on a cash basis. However, there is a strong religious tie binding the various communities. In a very real sense it is a brotherhood. In Europe there was one leading elder of the whole Hutterian church. With the removal of the colonies to America this practice was abandoned, although joint conferences of ministers may be held from time to time with their decisions binding on the whole.

Life in a Hutterite colony is simple. The group is like a big family. All live in long frame residences, each family occupying up to a maximum average of perhaps three rooms, depending on the size of the family. All eat in one spacious kitchen, the men sitting at one side of the table, the women at the other. The children have their own dining hall until they reach the age of fifteen, when they are counted adults. Food, plain but wholesome, is prepared in enormous quantities. Frugality is the ruling motto in the kitchen and on the farm, yet there is an abundance of everything. Apples are brought in by the carload. Steaming coffee, thick slices of bread and sausages are favourites on the colony table. Vegetables of all kind are grown in the kitchen gardens. The Hutterites also raise large numbers of ducks and geese. A Hutterite colony is a sure place for housewives to buy the finest feathers for stuffing pillows.

Ordinary physical ailments are taken care of by the skilful colony "bonesetter", the work of whom descends from father to son. More serious cases go to regular qualified doctors. They frequently patronize hospitals. On the whole the Hutterites are a healthy class. There is a common washing machine in the colony and a common sewing machine. Moreover, each colony has one telephone, and usually subscribes for one daily newspaper.

Hutterite families are large, eight and ten children being not infrequent. They like children, and there are plenty of them running about the bare, treeless and flowerless grounds. Visitors are soon surrounded by swarms of pathetically curious youngsters, who relish little treats. Living quarters are furnished for utility, not for beauty. The Hutterites do not believe in pictures, although school kiddies who have knitted dainty articles during school hours have been known to hang them up on the walls of their homes, obviously to satisfy a craving for beauty. Recreation as such is virtually unknown, their religion forbidding such pastimes as dancing, instrumental music, the movies or the radio. Songs are really chanted. Church services are held every evening, all who are able being required to attend.

The dress worn by these interesting rustic folk has changed but little from that of the past. The Hutterite women still wear long drab skirts reaching to their ankles, thick heavy waists, always aprons and shawls and numberless petticoats.

Pals

Photo by J. Rosetti

Beneath the shawls are close-fitting bonnets. The men are uniformly dressed in dark serviceable trousers, shirts and jackets, with circular caps or black felt hats on their heads. The married men invariably wear beards; in fact, this is an indication that they are married. The children are tiny replicas of the grown-ups and look the picture of quaintness. The girls all learn to sew and cook, and, on reaching their teens, help in the kitchen or nursery. The boys of the colony are assigned the chores about the barns and farm home.

In the earlier days, the Hutterites were famous for their mastery of handicrafts, and to some extent this practical skill has come down through generations. In this highly industrialized age, however, these specialized vocations within the colonies have gradually diminished, being replaced by a general assignment to agricultural duties. One exception is sewing and tailoring.

The women make all the men's suits — no modern tailoring for the sturdy Hutterite farmer. The clothing is well made and serviceable. The preacher on a Sunday faces his congregation wearing a very shiny frock coat, probably handed down from some devoted Hutterian man of God long since dead. Whether his good wife or some one else in the community tailored it is not clear. But there it is, made of alpaca, a material also of the distant past.

The preacher's frock coat comes in handy at a wedding in another colony for the groom may borrow it for his "great moment". While he appears in this special finery, not so the bride. Generally, she wears her ordinary dress, although a school teacher, long in the service of a Hutterite colony school, says she has known a bride to be married in a very stiff silk dress brought over to America by her grandmother from Russia, a relic steeped in historical memories, no doubt, for the older members of the colonies.

Even the Hutterite folk have their sentimental moments.

Marriage is always an important event, bringing, as it does, the colonies together. There is no betrothal, and the Hutterite groom has no worries about selecting a diamond or wedding ring for his bride. There is a simple wedding ceremony followed by much feasting, usually continuing for two days. After this life at the colony lapses into the old routine.

The dead are interred in the colony burial plot. Recently one of the Alberta Hutterite ministers died while visiting in the United States. His remains were brought back to his own Bruderhof community for burial.

The Hutterites are good farmers, and ready co-operators among themselves. As a general rule, they follow sound farm practices; they watch the markets. They have acquired some of the best agricultural lands in the West and seek more. In fact, they must have more and more in order to accommodate their increasing numbers. Thus their colonies are appearing in new districts. They do not assimilate, they show no desire to become naturalized. Their great desire is to be left alone, to live their lives in the simple way their martyred leader, Jacob Huter, held up before those Hutterian disciples four hundred years ago, and in which they have found a security too strong to jeopardize.

To a Hutterite, especially one of the older generation, the "world outside" looks far colder, far more forbidding, than the surroundings of his Bruderhof. There to him lies safety, and this fundamental teaching he instills in his offspring. Someday there may come disintegration from within; certainly pressure from without the colonies will not bring it about. Time has attested their ability to resist persecution. A breaking away may eventually come, but not in our day.

EDITOR'S NOTE-BOOK

Major-General the Honourable Sir Thomas William Glasgow, K.C.B., C.M.G., D.S.O., V.D., soldier, statesman and business man, was born in Gympie, Queensland. He was educated at the Maryborough Grammar School and then went into business. He served in the South African War with the Queensland Mounted Infantry from 1899 to 1900, when he was mentioned in despatches and received the D.S.O. and the Queen's Medal with five clasps. He returned from South Africa to Queensland where he bought a cattle station and about 4,000 Herefords. On the outbreak of the Great War in 1914, he again enlisted, and eventually was given command of the first Australian Division. He was awarded the C.M.G. in 1916, and was knighted in 1919. For his services in the Great War, he was made a member of the Legion of Honour and received the Croix de Guerre avec Palme. In 1920 he was elected to represent his State in the Federal Government, where he was a member of the Senate for eleven years. During that time, he was Minister for Home and Territories and Minister for Defence. From 1932 he lived in Brisbane, where he acted as a Director for various companies, and, at the same time, superintended the management of his station. Since March 1941, the writer has been the Australian High Commissioner in Canada.

Maurice Tremblay, writer of "North of the Great Lakes Lies Treasure", has been employed by the Ontario Department of Mines for the past seven years. He entered the public service of Ontario in the capacity of Private Secretary to the Minister of Mines, and, for the past two years, has been Statistician for that Department. During the six years which preceded his entry into the Ontario service, Mr. Tremblay was associated with Ottawa's French language daily, *Le Droit*.

C. Frank Steele, born in the United States, has spent most of his life in Canada. Educated in United States and Canadian schools, he is now city editor of the *Lethbridge Daily Herald*, Alberta. A frequent contributor to newspapers and magazines, Mr. Steele is the author of a book of verse. His article "Canada's Hutterite Settlement" is the result of a useful hobby — the study of western history and problems.

EDITORIAL

"CANADA'S MARCH OF DIMES"
A Challenge to Canadian Youth

Some months ago, one enterprising Canadian citizen, inspired by the success of the "March of Dimes" campaign in the United States in aid of paralysis victims, obtained permission from the Minister of Finance, Ottawa, to initiate and promote a similar campaign in Canada to buy aeroplanes for Britain. He enlisted the co-operation of leading magazines, journals and newspapers to publicize the plan, and up to April 23rd, the Finance Department had receivd 34,753 dimes. From all quarters of Canada and the United States, young and old contributed dimes — "to sock Hitler". Here is a simple plan whereby every boy and girl in Canada can *share* in the fight for Freedom — two ice-cream cones, two chocolate bars, two soft drinks, represent a dime each — real self-denial for the young, but united action by Canada's youth could present a *sock* at Hitler to the strength of $324,639 a week, if Canada's 3,246,391 citizens of to-morrow between the ages of 5 and 19 contributed their share of a dime a week.

All contributions should be sent to The Minister of Finance, Ottawa, Canada.

VICTORY LOAN

The Victory Loan to which all Canadians are now being invited to contribute will mean sacrifice of present luxuries, even tightening the belt for some, but who among us would care to be numbered with the Levite who passed by on the other side.

A Statement by the Minister of Finance

"In money alone this war will cost Canada this year four million dollars a day. That is three and a quarter times the daily cost of the last year of the last war. This conflict costs so much more because it is a battle giant, swift machines as well as of men. The fire power of a modern army division is approximately five times that of 1919.

(*Continued on page* XII)

The Society's ambition is to make itself a real force in advancing geographical knowledge, and in disseminating information on the geography, resources and people of Canada. In short, its aim is to make Canada better known to Canadians and to the rest of the world.

As one of its major activities in carrying out its purpose, the Society publishes a monthly magazine, the Canadian Geographical Journal, which is devoted to every phase of geography—historical, physical and economic—first of Canada, then of the British Empire and of the other parts of the world in which Canada has special interest. It is the intention to publish articles in this magazine that will be popular in character, easily read, well illustrated and educational to the young, as well as informative to the adult.

The Canadian Geographical Journal will be sent to each member of the Society in good standing. Membership in the Society is open to any one interested in geographical matters. The annual fee for membership is three dollars in Canada.

The Society has no political or other sectional associations, and is responsible only to its members. All money received is used in producing the Canadian Geographical Journal and in carrying on such other activities for the advancement of geographical knowledge as funds of the Society may permit.

(*Continued from page* XI)

Canada will not — dare not — sacrifice men for lack in quality or quantity of fighting machines. Hence, we must produce them on a scale hitherto undreamed of.

To do this Canada now needs to borrow from her citizens through the sale of Victory Bonds.

To destroy the grave menace to our freedom, we must use every resource in men, materials and money. We have the men. We must have the materials. Canadians have the money. But the whole-hearted support of *every citizen* is imperative to make this Victory Loan an outstanding success.

Our survival as a free people depends upon Victory. Think of the bombing of Coventry, London, Plymouth and other cities. Think of the plight of the citizens in occupied countries — the crushing of their spirit — the looting of their treasure. At all costs we must prevent such catastrophes from happening here.

Invest in Victory Bonds cheerfully and with confidence. Remember that in November 1918 Canadians invested $610,000,000 in Victory Bonds — and, eleven months later, in October 1919, our people invested again in Victory Bonds to the sum of $572,000,000. The total of those two loans was $1,188,000,000. Canadians could do it then — we can do it now in far greater measure — with our much larger population and greater national income. Those who bought Victory Bonds twenty-three years ago have had reason to be thankful. They have received their interest regularly and their money back when due.

Next to taking your place in the armed forces, the finest way for you to serve Canada is by investing in Victory Bonds."

J. L. ILSLEY

AMONGST THE NEW BOOKS

The Route of Columbus along the North Coast of Haiti, and the Site of Navidad by SAMUEL ELIOT MORISON, Professor of History, Harvard University. (American Philosophical Society, Philadelphia, Pa., $1.50).

The location of the actual site of the first settlement made by Europeans on the North American continent has long been disputed. Professor Morison has made a personal reconnaissance of the north coast of Haiti, in order to attempt to ascertain the exact course that Columbus followed on his first voyage to America, and to identify, if possible, the site where Columbus established his settlement after the wreck of his ship, the *Santa Maria*.

After doing considerable field work, both on land and by cruising along the coast, and by a study of all available documents and ancient maps, he arrives at the conclusion that Navidad is about six nautical miles east of Cape Haitien.

The text itself as well as Professor Morison's translation of parts of the original Journal of Columbus make interesting reading.

The report is published by the American Philosophical Society in their Transactions, New Series — Volume XXXI, Part IV, December, 1940.

The European Possessions in the Caribbean Area by RAYE R. PLATT, JOHN K. WRIGHT, JOHN C. WEAVER, American Geographical Society, and JOHNSON E. FAIRCHILD, Hunter College, New York.

Before the Nazi success of last spring and summer, few of the people of the Americas were much concerned with the possessions of Great Britain, France and the Netherlands in the region of the Caribbean. Few could name many of these possessions, and still fewer could tell much about their physical geography or of the people inhabiting these colonies. Now that these are assuming a position of vital importance in relation to the peace and security of North and South America, many newspaper articles have been written about them. Many questions have been asked as to the possibility of their being used as naval or air bases, as fifth columnist centres, and what will be their status after the present war?

This booklet, prepared by competent authorities is brimful of facts concerning these possessions. It describes the islands of the Caribbean, and the mainland colonies, gives a brief historical sketch of each, lists their resources, describes the social condition of the people, and the recent economic changes which have influenced their mode of living, and discusses, to some extent, the strategic value of each.

The volume contains a map showing the positions of the islands, and indicating to which nation they belong.

The booklet is obtainable from the American Geographical Society, Broadway at 156th Street, New York City. Price: $1.00.

D. A. NICHOLS

A Guide to Alaska, Last American Frontier by MERLE COLBY; a Federal Writers' Project, pp. 427, profusely illustrated, with one map, 16' x 22', in pocket. (MacMillan Co., Toronto, 1939. Price $3.00).

At long last we have a real guide to Alaska, that most fascinating of northern lands, about which the average American or Canadian knows about as little as he knows about Kamtchatka. The Territory of Alaska, comprising more than half a million square miles of land of which 385,000 are forested and 65,000 are considered suitable for agriculture, was formerly known as "Seward's Icebox" or "Seward's Folly", because he, in 1867, as Secretary of the Interior negotiated its purchase from Russia for $7,200,000. This rich territory ought to have been Canadian but British statesmen, who had first been given the option, declined "with thanks" considering the price exorbitant.

A Guide to Alaska is very different from the conventional kind of guide book that takes the traveller firmly in hand and points out all the "sights" that must be seen. Instead Colby takes the reader sightseeing and exploring among Alaska's glaciers and mountains, delves into its history, its physiography and wild life. The style is easy and is enlivened by numerous anecdotes and also with a few "tall" tales. The person who picks up the book in order to look up a casual reference will likely find himself reading on to the end cover and, likely as not, sooner or later imbued with a burning desire to visit Alaska.

A Guide to Alaska consists of a "Preliminary Section" which, in 55 pages gives a wealth of concise and accurate information about the geography, transportation, travel routes, hotels, cost of living, etc., including an amusing list of "most popular errors about Alaska" and a most useful list of well-planned itineraries for "round-trippers".

The main part of the guide is made up of two sections. Part I, entitled "The Great Land" contains chapters on History, The People, Government, Natural Wealth, Commerce, Transportation, Communications and National Defence.

Part II, entitled "The Last Frontier" is mostly descriptive and takes the "traveller" over some of the best known and most interesting routes, such as:

1 Inside Passage and South-eastern Alaska
2 The Yukon Trail
3 Glacier Country and the old Copper River Railroad
4 The Richardson Trail
5 By Rail to the Interior
6 The Golden Heart
7 To the Westward
8 Bristol Bay and the Kuskokwim Country
9 Seward Peninsula and North-western Alaska
10 The Arctic

The illustrations are excellent and well chosen and the book, considering that it is a compilation, in many instances made by persons who could have had no first-hand information about the country, remarkably free from errors. The last chapter, "The Arctic", curiously enough, is by far the poorest and is rather replete with errors that might well have been avoided. It is stated here that while Cook, in 1778, reached the Arctic Ice Pack at Wainwright, "explorers of the Hudson's Bay Company had been pushing westward along the Canadian Arctic Coast". Kiwalik on Kotzebue Sound is described as a "seaport having a good harbour" and the mining town of Candle is said to be a good place from which to hunt "bear, caribou, walrus and smaller game". Buckland Village, on the Buckland River, is said to be on Eschscholtz Bay. In the same chapter is a reference to "legendary (sic) snow houses of the story books" and to the skins of sea lion, said to be synonymous with "ugruk" (bearded seal) which are "used by the Eskimo for roof covers".

The guide has a good index and also a list of reference books. The map, 16" x 22", is the 80 miles to the inch base map of the U.S. Geological Survey.

A Guide to Alaska, incidentally, contains a great deal of information and many hints equally valuable for travellers to the Canadian Yukon.

A. E. PORSILD